The MIDIMATE™ Series

MIDIPATCH™
For the Yamaha DX series

And the ATARI® Personal Computer

User's Manual

Hybrid Arts Inc.™
11920 W. Olympic Blvd., Los Angeles, Ca. 90064

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DX-Patch for the YAMAHA DX-7, DX-9 and TX series and the ATARI 130XE, 800XL, 800, 600, 400, and 1200 personal computers with at least 48K.

Program by Joe Fitzpatrick, Bernard Servolle, and Paul Rother.
Technical support from Stefan Daystom, Bob Moore and Jeff Fair.

Second Edition.

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DX Parameter Setup Recommendations

Certain DX-Patch voices require setting some of the DX parameters. These are labeled as follows:

An "*" to the right of the voice name means that the Mod Wheel affects the sound. Turn the Mod Wheel up.

An "*" in the middle of a voice name indicates that the voice to the right of the "*" is with the Mod Wheel on and the name to the left of the "*" is with the Mod Wheel off.

A "/" in the middle of a voice name indicates that the keyboard is split. The name to the left of the "/" is the low voice; the name to the right of the "/" is the high voice.

A "+" to the right of a name indicates that the voice is naturally chorused.

A "P" to the right of a voice name indicates that "After Touch Pitch" should be used. Press the Function button on the DX and then press the After Touch Range button (#29). Set it to 20 and then press button #30 on the DX to enable the pitch. Make sure that "After Touch Amplitude" and "EG Bias" are turned off.

INTRODUCTION

Congratulations on your selection of Hybrid Arts' DX-Patch/DX-Editor program. These two programs were designed to work with your MidiMate interface and with your Atari 400, 600XL, 800, 800XL, 1200XL, 65XE and 130XE (you need at least 48k of RAM).

DX-Patch is a DX/TX librarian. With this program you will be able to load a group of voices into your DX/TX instrument and also individual voices from disk into any desireable location within your instrument's internal memory. You will be able to save individual and groups of voices to disk, name your voices and groups, and also rearrange your voices. The system capacity is 16 groups of 32 voices each per disk side.

DX-Editor is an enhanced version of DX-Patch and operation of all of the patch (voice) librarian functions is virtually identical to the procedures outlined for the DX-Patch program. However, the following differences between DX-Patch and DX-Editor should be noted:

1. DX-Patch has 5 Group Buffers (B0-B4) while DX-Editor has only four Group Buffers (B0-B3). This, of course, means that all commands associated with the fifth buffer are no longer valid (see page 14 &22).

2. DX-Patch requires the user to manually initialize the DX/TX (see page 9). DX-Editor initializes the DX/TX automatically. Note: The user must still select the MIDI channel (channel #1 to enable the automatic initialization).

On page 31 of this manual you will find the additional DX-Editor commands. Those of you who own DX-Patch, ignore these pages until you are ready to upgrade to the DX-Editor program.

For details on our other hardware & software products contact:

Hybrid Arts, Inc. 11920 W. Olympic Blvd. LA, CA 90064 (213) 826-3777

To learn about MIDI you can contact the International MIDI Association (IMA) at: 11857 Hartsook St. North Hollywood, CA 91607 (818) 505-8964

If you have a modem you can dial-up the Hybrid Arts BBS and query our computer and have your questions answered over the phone as well as tap into DX7 voices and MidiTrack II & III songs (the network is worlwide). The number for that service is: (213) 826-4288

The differences between the DX7 and DX9 keyboards.

The DX7 keyboard has 32 internal memory voices, 32 algorithms, and 6 operators per algorithm. The DX9 has 20 voices in its internal memory, 20 algorithms and 4 operators per algorithm. It is possible to use a DX9 with DX patch but only the first 20 voices can be loaded from disk in each group. Likewise the 20 internal voices will be saved to the first 20 locations in each disk group. The actual sound of each voice loaded from disk into the DX9 internal memory may be slightly different than the same voice loaded into the DX7 due to the fact that the DX9 does not use operators 5 and 6.

Note: YAMAHA uses the term voice to describe a "sound" or "patch", in their instruction manual. We will also use the term voice throughout our manual. Likewise a "group" is 32 voices.

1. Getting Started

Unpacking

Inside the box you will find one DX-Patch software diskette, this instruction manual and a warranty and software update registration card. Fill out the card and return to Hybrid Arts as soon as possible so we can let you know of software updates and new products that work with the MIDIMATE interface box. The card will also start your warranty period (see license agreement on page 3).

Setting up.

You must have the following equipment in order to be able to use this product: An Atari computer with at least 48k of RAM (400, 800, 1200, 800XL, 130XE), an Atari (or Atari compatible) single or double density disk drive (Atari 810, 1050, etc.), a DX keyboard and a MIDIMATE interface box and 2 MIDI cables. A printer is optional and will allow you to print a catalog of the voices stored on your disks. A second disk drive is also optional.

Connect one MIDI cable from the MIDIMATE MIDI OUT jack to the DX MIDI IN jack. The second cable connects the MIDI OUT of the DX and the MIDI IN on the MIDIMATE. Connect the MIDIMATE I/O cable to the free I/O port on your disk drive. The other I/O cable (supplied with your disk drive) must be connected between the disk drive and your computer. The computer should also be connected to a video monitor or TV set.

Initializing the DX

Turn the DX on and wait for the "YAMAHA DX SYNTHESIZER" message to disappear. Now press the FUNCTION key on the DX and select key #8 (MIDI mode and channel selector). For more information on how to operate the DX see the DX instruction manual. Select MIDI channel #1 (with the + or - keys or with the DATA ENTRY slider), then press button #8 again and the message in the DX window will change to "SYS INFO UNAVAIL". Press the YES key to change it to "SYS INFO AVAIL".

Now press the "MEMORY PROTECT - INTERNAL" key and the message in the window will change to "MEMORY PROTECT - INTERNAL ON". This means that you cannot "write" to internal memory (or erase the internal voices). In order to load sounds from disk into internal memory you have to disable this function. Press the NO key on the DX and the message in the window will change to "MEMORY PROTECT-INTERNAL OFF".

Note: If you have voices in your DX that you would like to save to disk, wait on unprotecting the internal memory until your voices are saved to disk (see Saving DX Internal Voices to Disk).

Loading the Master Disk

Now insert the DX-Patch diskette and close the drive door and turn the computer on. Make sure there is no cartridge in the cartridge slot.

Atari 800XL and 130XE owners: Before turning on the computer hold the option key down, turn on the computer, and as soon as the disk drive starts loading the disk release the option key. Wait for the busy light to go out. This will disengage your built in Basic ROM.

As soon as the the program is finished loading the DX will play the test notes using voice #1 in internal memory and a square cursor will appear above "Disk Group" at the bottom left of the screen. Hit "Return" and the cursor will move to its normal location at the bottom right of the screen.

Now you have to enable the Midi Transmit function on your DX. Press the FUNCTION key on the DX and then the 8 key. The message in the window will change to "MIDI TRANSMIT?". Reply with a YES on the DX.

Note: You cannot update the date on the DX-Patch master diskette. This is the pre set factory date. You cannot store sounds to this disk either ("write") because it is write protected (the write protect notch is covered). DX-Patch comes with 8 groups of 32 voices each, intended to be loaded into the DX only. If you wish to update the date on your master disk and/or store voices to it you have to remove the write protect tab before attempting to do so. Replace the tab as soon as you are done writing to the disk to protect the disk from being written to. Similarly, you can save your own options to the master disk. See chapter 3 "Options". In order to be able to store your own sounds to disk we recommend that you use a new and formatted disk.

Diskette Handling, Formatting & Copying

To avoid causing damage to your master diskette and work diskettes, always handle them gently. Keep them away from magnetic fields (such as loudspeakers), dirt, dust and liquids.

Never touch the exposed section of the disk with your fingers. Always keep your diskettes in their protective envelopes until they are ready to be used.

It is strongly recommended that you protect your valuable disks with the write protect tabs supplied with the disks. The tabs prevent the disk drive from writing to the disk accidentally as a result of an operator error.

Back up your valuable voices by using the copy command described below. All diskettes should be labeled and listed in your notebook so you can keep track of your DX-Patch voices.

To format a new disk use the "**F$**" command. This operation will erase any previously recorded data on the disk!

To back up the voices on a work diskette use the "**C$**" command. You will be asked to insert the source disk (the one with the voices you wish to copy and hit "**Return**". Then, after the drive is finished reading the voices you will be asked to insert a new disk (formatted) and hit "**Return**". Repeat this procedure three times (as instructed on the computer monitor) until the voices on the source disk are all copied onto the new disk.

Note: The DX-Patch commands are two key commands (double stroke commands). This means that you have to hit the first character first, release it and than hit the second character. Only this sequence will execute the commands.

Saving DX Internal Voices to Disk

Before getting too deep into this manual we recommend that you save your internal memory voices to disk. This will free up your internal memory space and will allow you to develop more voices.

Use a new and formatted disk. Hit "ND" and then "Return" to log in the new disk and make sure the Group Screen is displayed. If any other display screen is displayed hit "GG" and the Group Screen will be displayed. Now hit "CG" and enter a number between 1 and 16. The square cursor will move to the selected group. Hit "SG" and the DX internal voices will be transferred into the computer memory and also to disk. To display the voices in this group hit "VV". We will discuss these functions in detail in chapter 2, "Using DX-Patch".

Note that the Group and Author name are blank at this point. Group and Author naming are described in chapter 3 under Edit Commands.

Now that your DX voices are saved to disk we can start to learn how to use the extensive features of this program. Have a couple of formatted disks handy and proceede to chapter 2. We will learn how to transfer voices and groups from the DX to DX-Patch and vice versa. We will also learn to use the utility, edit and print commands. Use the list of commands as a quick refference guide.

2. Using DX-Patch

The Display Screens

DX-Patch uses four display screens:

1. Disk Group Directory: Displays the 16 groups on disk, their sequential number on disk followed by the group name, date and author's name.
   To display the group directory hit **GG** on the Atari keyboard.
   A spade to the right of the author's name indicates that this group is protected.

2. Current Disk Group Voice List: Displays the 32 voices residing in the current group buffer (or B0-see below). Use the **VV** command to display this screen.

3. The YAMAHA Screen: Displays the voices stored in the YAMAHA buffer (B1). To display this screen hit **YY**. To load the Yamaha voices into this display use **"UY"**.

4. The Help Screen: On the Help Screen you will find the major commands of DX-Patch. Use it as a quick reference guide. Hit **HH** to display this screen.

   Cetain characters do not change on the screen. On the top line the name of the program is displayed (DX-Patch) followed by the copyright notice. Below that the disk name is displayed which consists of 16 characters or less and can be changed by the user; the author's name (6 characters or less) and the date (9 characters or less). These two can also be changed by the user.

   At the bottom left of the screen the current disk group is displayed: The group number followed by the group name. (This is the group name displayed to the right of the highlighted number in the Group Directory.) Below this line you will see the current disk voice: The current disk voice number followed by its name (this name is displayed on the Current Disk Group Voice List next to the highlighted number).

The current Yamaha voice in the Yamaha Buffer (see below) is displayed on the third line at the bottom left of the screen (This number is highlighted on the Yamaha Screen described above), but no name is displayed. To the right of this number the MIDI Channel number is displayed. This number should match the MIDI Channel number selected on your DX.

At the bottom right of the screen two of the options are displayed: **TN** (Tones) and **AI** (Auto Increment. They can be either on (highlighted) or off. See chapter 3 "Options" for details.

The **YD** to the right of **AI** represent the Yamaha DX and Atari Disk Drive and indicate disk drive or Yamaha activity while transferring data.

The Last command entered is displayed at the bottom right of the screen.

The DX-Patch Buffers

DX-Patch has five user buffers, labeled B0, B1, B2, B3 and B4. Each buffer can store 32 DX voices. By loading five groups of voices from disk into these buffers (the buffers are part of the computer memory), the user can quickly and easily load one of the five groups of 32 voices into the DX internal memory without accessing the disk drive (using the **L0**, **L1**, **L2**, **L3** and **L4** commands).

B0 is the buffer where the group loaded from disk goes to when you use the "CG" or "+G" or "-G" commands (see diagram). It is the Current Group Buffer. This can also be thought of as the Disk Group.

B1 is the Yamaha buffer and is used to view the DX internal memory voices by using the "YY" command to display this buffer and "UY" to load the DX voices into this buffer.

B2, B3 and B4 are additional buffers used to store any 3 disk groups and allow the user to access a great number of voices quickly without waiting for the disk drive to load them.

To transfer groups from B0 to B1, B2, B3 or B4, use the "B1", "B2", "B3" and "B4" commands respectively. The command "AG" will load five consecutive groups into these buffers, the last group will stay in B0. The first group goes to B1, the second to B2, the third one to B3, the fourth to B4 and the fifth group is loaded into the Current Group Buffer - B0.
Then, with simple commands, L0 through L4, you will be able to load 5 disk groups into the DX very quickly. Also see chapter 3 "Loading Disk Groups into the DX internal Memory". These commands will display the contents of the buffers, respectively. Another way to display the five buffers is to use the following commands: "Y0", "Y1", "Y2", "Y3" and "Y4".

Saving DX Groups to Disk

In order to save a group to disk, select the group number by using the "CG" command followed by the group number. You can also use the "+G" or "-G" commands. Make sure the group is unprotected (no spade to the right of the group author's name). If you wish to save to a protected group, unprotect it with the "UP" command, but remember that the new group will replace the old one.

Hit "SG" (Save Group) and the DX internal voices will be saved to disk onto the current group, and the group line will be highlighted. Enter the new group name up to 16 characters and hit "Return". The new group name will appear in the group directory and will also be saved to disk. The author's name and date will also be saved to disk and appear in the Group Directory. If you wish to protect the new group you have just saved, hit "PT" (Protect) and a little spade will appear to the right of the author's name.

Loading Disk Groups into the DX internal Memory

The DX internal memory protect function has to be off in order to be able to load groups (and also individual voices) into internal memory.

To load a whole group, select the group number with the "CG" (Change Group) or "+G" or "-G" commands. Wait for the disk drive to finish loading the new group into the computer and then hit "LG" (Load Group). The current disk group will quickly replace the 32 voices in internal memory, and if the "AI" (Auto Increment) option is on (highlighted), the next disk group will be loaded into the computer.

"AG" (All Groups) will load 5 disk groups into the 5 user buffers. The first group will be loaded into B1, the next group into B2 and so on, and the last group (fifth) will become the current group and will reside in B0. To load any one of these five groups into the DX, hit L0, L1, L2, L3, or L4. This feature allows you to store five groups of 32 voices each in the computer memory and load them quickly into the DX internal memory without accessing the disk drive.

Saving DX voices to Disk

To save a DX voice select it on the DX keyboard. Then select the location within the group you wish to save this voice to. First select the disk group as described above under "Saving DX Groups to Disk". Then display the group voices with the "VV" command. Select an empty location using the "CV" command and enter the new number. You can also move to the desired location by using the "+V" or "-V" commands. Then select the Yamaha Pr# (displayed at the bottom left of the screen). This number should match the voice number on the DX keyboard (the one you wish to save to disk). Use the "CP" command and enter the new number (same as on the DX keyboard). You can also use the "+P" or "-P" commands to change the Yamaha Pr#.

Now hit "SV" and the DX voice will be saved to disk. The voice name will also appear on the Disk Voice List. Make sure the group that you wish to save this voice to is unprotected. Use "UP" to unprotect a protected group and remember to re-protect it at the end of your work (With "PT").

If you attempt to save a voice to a protected group, the system will hang up. To recover, press the Reset key on the Atari computer. This will not change or erase any voices in the computer or in the DX.

Loading Disk Voices into the DX

To load an individual voice into the DX, select it on the Voice List. You can select the voice with the "CV" (Change Voice), with "+V" or "-V" commands. Now hit "LV" (Load Voice) and the current disk voice will be loaded into the DX Edit Buffer. Then select the internal memory key on the DX, hold the **Store** key down and select the location on the DX (1 - 32) where you want the voice stored.

Rearranging the Order of Voices in a Group

To rearrange the order of voices in any group select the Disk Group and use the Yamaha Buffer (B1) to transfer the voices into their new locations. The voices to be transferred should be selected, one at a time, on the "Group Voice List" and then transferred with the "BV" command into the Yamaha Buffer. Note that the location in the Yamaha Buffer has to be selected with the "CP" or "+P" or "-P" commands. The voice will be transferred into the location indicated by the number to the right of "Yamaha Pr**". When you are done transferring the group voices into their new locations, use the "SY" command to save the voices to the same disk group or to any other disk group. Remember to select the disk group before typing "SY" and also remember to unprotect the group if applicable.

Using the YAMAHA Screen

The Yamaha screen allows you to see the voices in the DX internal memory at any time. Hit "YY" and the Yamaha screen will be displayed. To update the Yamaha screen type "UY". The DX internal voices will be transferred into the Yamaha Buffer (B1) and displayed on the screen. If the system hangs up (no display) you may have forgotten to complete initializing the DX keyboard as described above. Select Function 8 on the DX and select "MIDI TRANSMIT". Then hit YES and the DX voices will quickly be displayed on the screen.

The Yamaha screen can be usefull when transferring groups from disk to disk as described under "Moving Groups from Disk to Disk".

Moving Groups from Disk to Disk

To move an entire group from disk to disk, load the group into your DX with the "LG" command. Then insert the new disk (must be formatted) and hit "ND". Save the DX voices to the desired group location on the new disk.

Another way to do this is by loading the group into into the Yamaha Buffer (B1) by using the "B1" command. Note that the group that you wish to copy must already be in the Current Group Buffer (B0). Then switch disks, hit "ND" and use the "SY" command to save the Yamaha Buffer to the new disk.

Changing Groups and Voices

Changing groups in the Disk Group Directory is done with the "CG" command and a number between 1 and 16, or with the "+G" or "-G" commands. This is done every time you wish to save the DX internal voices to disk. Change the group to the new group you wish to save the DX internal voices to before entering the save command.

Before using the "Load Group" command "LG" you have to change the group number as well (as described above). Watch the square cursor move to the new group when you use the group change command.

Similarly, you have to change the disk voice number on the disk group voice list whenever you wish to save a single DX voice to disk or load a disk voice into the DX internal memory.

The voice change commands are: "CV" or "+V" or "-V".

3. Utilities

Options

The following options can be set and saved to your master disk so when you reload your disk you will not have to reset the options.

TN and **AI** are displayed at the bottom right of the screen and can be turned on and off by using the **TN** and **AI** commands respectively. The highlighted characters mean that the function is on. **TN** enables the test tones. These tones are heard when you first power up. You can select 6 different tone patterns by using the **T1, T2, T3, T4, T5** and **T6** commands. The system defaults to **T4** when you load your master disk for the first time.

The "**AV**" command will play the test tones using all 32 voices.

AI (Auto Increment) will load the next group into the computer as soon as it is done loading the current group into the DX. It will also increment the current disk voice when you load a voice into the DX. **03, 04, 05, 06** and **07** chgange the pitch of the test tones in steps of 1 octave. The system defaults to **05** when you load the master disk for the first time. **C1, C2, C3,** and **C4** are the 4 color selections available to the user.

These options can be saved to your master diskette by using the "**SO**" command; however, you have to remove the write protect tab in order to do that. Remember to replace the tab as soon as you are done.

The Edit Commands

The edit commands allow you to change the group and voice names, the name of the author, the disk name and the date. These commands will only work with new and formatted disks. If you attempt to use these commands with the master disk, a disk error will result. To recover hit "**ESC**". It is possible to to write to the master disk by removing the write protect tab, changing any of the above names using the edit commands and replacing the write protect tab.

To name the disk type "**EN**". Enter the new name and hit "**Return**". The new disk name will apper at the top of the screen.

"**EG**" will allow you to name a group. The new name will appear on the current group line (highlighted) in the Disk Group Directory.

To change the author's name use the "**EA**" command. Enter the new name from the Atari keyboard and hit "**Return**". The new name will appear at the top of the screen.

Similarly, use "**ED**" to change the date.

Disk Utility Commands

It is important to format every new disk that you intend to use for data storage. See disk handling and formatting for details. Formatting a new disk is done with the "**F$**" command. You will be asked to insert the new disk and hit "**Return**". The formatting process takes a few seconds after which your disk will be ready to accept data. You can format a used disk; one that has voices or any type of data on, it but you will lose all that information. Make sure the write protect tab is off if you wish to format a used disk and most importantly, make sure there is no valuable information on the disk before you start formatting it.

To copy the voices on a disk (in all 16 groups) onto another disk use "**C$**". You will be asked to insert the source disk and hit "**Return**". After a few seconds you will be asked to remove the source disk and insert the destination disk (must already be formatted). After 3 passes all voices on the source disk will be copied onto the new disk.

Note: This operation will not copy the DX-Patch program itself, only the voices, because the DX-Patch program is copy protected.

Whenever you switch to a new disk use "**ND**" (New Disk) to log in the new disk. You will not be able to access any voices or store DX voices to the new disk before initializing it with this command.

To save your options ("**AI**" on or off, "**TN**" on or off, the screen colors, the test note pattern and the octave) onto the master disk remove the write protect tab, insert the disk into the disk drive, set the options the way you would like them to work every time you boot the master disk and hit "**SO**". Your new options will be written to the master disk. Remove the disk and replace the write protect tab.

To protect a disk group select the group number and hit "**PT**". A little spade will appear next to the author's name on the group list. You will not be able to store voices or groups to a protected group. A "Group Protected!" message will warn you of a protected group should you attempt to do so. To recover hit the "**Reset**" key on the computer and then the space bar twice.

To unprotect a group use "**UP**". The little spade on the selected group line will disappear and you will be able to store voices and entire groups to this disk group.

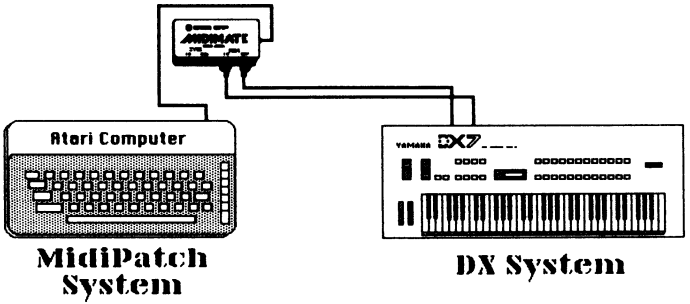
Note: The DX-Patch master disk is shipped with its groups protected. You will not be able to unprotect them unless you remove the write protect tab. We recommend that you use a new disk to save voices to.

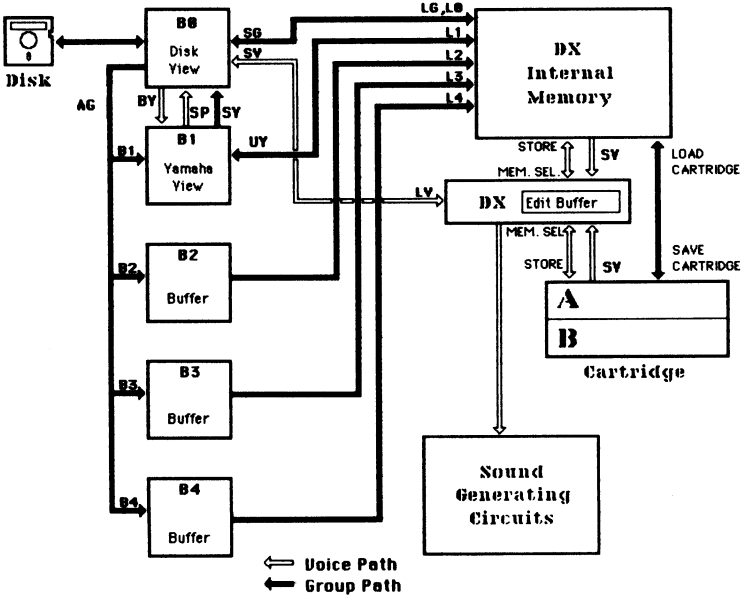
The Print Commands

To use these commands you must have a printer connected to the serial I/O port of your Atary systems. The MIDIMATE, in this case, can be connected to the free I/O port on your printer. You can use a printer that works with the Atari 850 interface or any direct connect printer designed to work with the Atari personal computer.

A "**PG**" command will print a list of the 16 disk groups (Group Directory).
"**PV**" will print a list of the current group voices (the 32 voices residing in BO).
"**PH**" will print the same list horizontally.
To print a list of all voices in all groups (vertically), use "**PL**". To print the same list horizontally use "**PW**".

System Path Diagram





List of Commands

Using the DX-Patch Commands

All of the following commands consist of two characters (alpha numeric). Enter these characters from the Atari keyboard one at a time. There is no need to use the Shift and/or Control keys. Most of the command names (in bold letters) are self explanatory. The diagram will help you understand the main building blocks of DX-Patch and the DX keyboard and how groups and voices are transferred within the system. The main commands are listed in the diagram (page 22).

Note: In the following commands, B0, B1, B2, B3 and B4 refer to buffers 0, 1, 2, 3 and 4 respectively.

GROUP TRANSFERS

LG - **LOAD GROUP** - Loads the disk group into the DX internal memory (from B0 to DX internal memory). If A! is on, increments the disk group (the next disk group is loaded into B0).

SG - **SAVE GROUP** - Saves the DX 32 (or 20)internal voices to the current disk group (goes into B0 and also to disk).

SY - **SAVE YAMAHA** - Tranfers the sounds in the YAMAHA buffer (B1) to the current disk group buffer (B0 or disk view) and to disk.

UY - **UP YAMAHA** - Loads the DX internal voices into the YAMAHA buffer (B1).

B1 - BUFFER 1 - Transfers the contents of the current disk group buffer (B0) into buffer 1 (B1).

B2 - BUFFER 2 - Transfers the contents of the current disk group buffer (B0) into buffer 2 (B2)

B3 - BUFFER 3 - Transfers the contents of the current disk group buffer (B0) into buffer 3 (B3).

B4 - **BUFFER 4** - Transfers the contents of the current disk group buffer (B0) into buffer 4 (B4).

L0 - **LOAD 0** - Loads the contents of buffer 0 into the DX internal memory. Same as LG but no Auto Increment Logic.

L1 - **LOAD 1** - Loads the contents of buffer 1 into the DX internal memory.

L2 - **LOAD 2** - Loads the contents of buffer 2 into the DX internal memory.

L3 - **LOAD 3** - Loads the contents of buffer 3 into the DX internal memory.

L4 - **LOAD 4** - Loads the contents of buffer 4 into the DX internal memory.

AG - **ALL GROUPS** - Fills all buffers current to B1, next current to B2, etc. The last group resides in B0.

VOICE TRANSFERS

LV - **LOAD VOICE** - Loads the current disk voice into the DX edit buffer. If **AI** is on, increments the current disk voice.

SV - **SAVE VOICE** - Transfers the DX internal voice, displayed to the right of "YAMAHA PR#" into the current disk group buffer (B0) into the highlighted location. Increments the current disk voice if AI is on.

BV - Transfers the current disk voice into the YAMAHA buffer (B1) into the patch number displayed to the right of "YAMAHA PR#.

SP - Transfers the patch number displayed to the right of "YAMAHA PR #" in the YAMAHA buffer (B1) to the current disk buffer (B0) into the current voice and saves it to disk.

AV - **ALL VOICES** - Transfers the current disk group (B0), one voice at a time into the DX Edit Buffer. Used primarily to listen to the current disk group voices.

GROUP AND VOICE CHANGES

CG - CHANGE GROUP - Changes the current disk group number (the highlighted number on the group list. Enter the new disk group number (1 through 16) manually.

+G + GROUP Increments the disk group number.

-G - GROUP Decrements the disk group number.

CV - CHANGE VOICE - Changes the current disk voice number (the highlighted number on the voice list). Enter the new voice number (1 through 32) manually.

+V + VOICE Increments the current disk voice number.

-V - VOICE Decrements the current disk voice number.

PATCH AND MIDI CHANNEL CHANGES

CP - CHANGE PATCH - Changes the patch (voice) number in the DX window and in the YAMAHA buffer (B1). Enter the new number manually. If **TN** is on, plays the selected test tones using the new selected voice.

+P + PATCH Increments the patch (voice) number in the DX window and in the YAMAHA buffer (B1). If **TN** is on, plays the test tones using the new voice.

-P - PATCH Decrements the patch (voice) number in the DX window and in the YAMAHA buffer (B1). If **TN** is on, plays the test tones using the new voice.

AP - ALL PATCHES - Plays all 32 voices in the DX internal memory whether TN is on or off.

CM - CHANGE MIDI - Changes the MIDI channel number. Enter a number manually (1 through 16).

+M + MIDI Increments the MIDI channel on the DX.

-M - MIDI Decrements the MIDI channel on the DX.

AM - ALL MIDI - Goes through all 16 MIDI channels.

SCREEN DISPLAY COMMANDS

GG - Displays the disk group directory (16 disk groups).

VV - Displays the current disk group voices (32 BO voices).

YY - Displays the YAMAHA buffer (B1) voices.

HH - Displays the help screen.

"RETURN" - Alternates GG/VV.

"Y0" - Displays the contents of Buffer 0.

"Y1" - Displays the contents of Buffer 1.

"Y2" - Displays the contents of Buffer 2.

"Y3" - Displays the contents of Buffer 3.

"Y4" - Displays the contents of Buffer 4.

OPTIONS

AI -AUTO INCREMENT - Turns the auto increment mode on or off.

TN - TEST TONES - Turns the test tone mode on or off.

T1 - TONE 1 - Uses tone pattern 1

T2 - TONE 2 - Uses tone pattern 2

T3 - TONE 3 - Uses tone pattern 3

T4 - TONE 4 - Uses tone pattern 4. (default).

T5 - TONE 5 - Uses tone pattern 5

T6 - TONE 6 - Use tone pattern 6

O3 - OCTAVE 3 - Uses tone octave 3

O4 - OCTAVE 4 - Uses tone octave 4

O5 - OCTAVE 5 - Uses tone octave 5 (default).

O6 - OCTAVE 6 - Uses tone octave 6.

O7 - OCTAVE 7 - Uses tone octave 7.

C1 - COLOR 1 - First set of screen colors.

C2 - COLOR 2 - Second set of screen colors.

C3 - COLOR 3 - Third set of screen colors.

C4 - COLOR 4 - Fourth set of screen colors.

UTILITIES

F$ - FORMAT - Formats disk in drive 1.

C$ - COPY - Copies disk.

ND - NEW DISK - Logs in new disk.

SO - SAVE OPTIONS - Saves options to master disk.

D1 - DISK 1 - Selects drive 1.

D2 - DISK 2 - Selects drive 2.

PT - **PROTECT** - Protects current disk group.

UP - **UNPROTECT** - Unprotects current disk group.

PRINT COMMANDS

PG - **PRINT GROUP** - Prints a list of the 16 disk groups.

PV - **PRINT VOICES** - Prints a list of the current group voices (32 voices in BO).

PH - Prints voices horizontally (BO voices)

PL - Prints a list of all voices in all 16 disk groups.

PW - Prints a list of all disk voices in all groups in a horizontal format

EDIT COMMANDS

EN - **EDIT NAME** - Edits disk name.

EG - **EDIT GROUP** - Edits current disk group name.

EV - **EDIT VOICE** - Edits the current disk voice.

EA - **EDIT AUTHOR** - Edits the author's name.

ED - **EDIT DATE** - Edits the date.

Glossary of Terms

Auto increment - Increments the current disk group or the current disk voice whenever a group or voice is transferred to and from the DX internal memory.

Bit - The smallest unit of digital information. A bit is 1 or 0, high or low, true or false.

Buffer - A section in computer RAM that is used to store information temporarily until it is used later. B0 through B4 in DX patch are buffers that contain one group of 32 voices each.

Byte - 8 bits. A byte is the basic unit of data that the Atari uses. A DX voice is 128 bytes or 1024 bits.

Channel - (MIDI channel) Part of the MIDI specification. There are MIDI channels 1 through 16. MIDI channels are used to selectively address synthesizers tied into a MIDI chain.

Current Disk Group - One of the 16 disk groups that is loaded to buffer 0 (highlighted in the disk group directory).

Current Disk Voice - The highlighted voice in the current disk group voice directory (VV).

Decrement - Subtract one unit.

Disk Group - 32 voices stored on a disk as a "group". (See definition of Group).

Diskette - Also called disk or floppy disk or just floppy. Used for storage of data.

Disk Voice - The current voice (stored on disk) that can be loaded into the DX internal memory.

Edit Buffer - A buffer within the DX keyboard where all the parameter changes are stored. When a DX voice is selected, it goes into the edit buffer. It is the voice in this buffer that controls the sound gerneration circuitry.

Formatting - Laying down sectors onto a floppy disk. New soft sectored disks (the ones used by DX-Patch) come unformatted.

Group - 32 voices grouped together. DX-Patch has 16 groups of 32 voices each that can be stored on one side of a disk. The Disk Group Directory screen displays the 16 groups.

Increment - Add one unit.

Load - Transferring a group of voices or individual voices from the 5 buffers into the DX internal memory.

MIDI - Musical Instrument Digital Interface. The standard that makes musical instruments work with each other and with computers possible.

Patch - Same as voice. A specific sound generated by an electronic keyboard.

RAM - Random Access Memory. This is the internal computer memory, used to store information while the computer is on. All the new Atari computers have 64k bytes or 128k bytes (about 65,000 bytes or 130,000 bytes).

Save - Transferring a group of voices from the DX internal memory into the computer buffer #0 (B0) and onto disk.

Software - What DX-Patch is. Just a bunch of zeroes and ones that tell the hardware what to do. MIDIMATE is hardware.

Test Tones - Used to test the DX voices (by activating the audio output of the DX).

Voice - Used by YAMAHA for "sound" or "patch". Selected from internal memory, cartridge or disk. Used by others to denote a single note. In this manual we use "voice" the way Yamaha defines it.

YAMAHA Buffer - B1 in the computer memory. Used to view the voices stored in the DX internal memory and also as an additional buffer so that five groups of voices can be quickly loaded into the DX internal memory.

DX-EDITOR ADDITIONAL COMMANDS

DX-Editor allows you to alter the parameters of any Patch (voice) in your library with the following commands:

VE - Enters the voice editor section of the program. When you use the VE command the current disk voice will be loaded into a special edit buffer and the various parameters will be displayed on the screen. At this point, all of the valid edit commands require only a single keystroke instead of two.

Then the following commands become valid:

<esc> - Exits the voice editor screen and enters the patch librarian (DX-Patch) portion of the program.

<return> - Since all of the voice parameters do not fit on the computer screen at one time, they have been divided into two screens of information. The <return> key toggles which of these screens is being displayed.

\- - Moves parameter cursor up (vertical).

= - Moves parameter cursor down (vertical).

\+ - Moves parameter cursor left (horizontal).

* - Moves parameter cursor right (horizontal).

When using any of the above cursor commands, holding down the key will repeat the command and continue to move the cursor in the desired direction. The computer screen will toggle automatically when the cursor moves to parameters available on either screen.

- Increases the current parameter value by 1; holding this key down will repeat this command until the parameter reaches its highest possible value, at which point the parameter value will "wrap around" to the lowest possible value.

- Decreases the current parameter value by 1. Holding this key down will repeat this command (see above).

<shift> + <.> Increases the current parameter value by 10; holding these key down will repeat the command.

<shift> + <,> Decreases the current parameter value by 10; holding these keys down will repeat the command.

<shift> + <+> Moves the "Source Operator" cursor left. The "Source Operator" is the Operator parameter column from which COPY commands receive their parameter values to copy.

<shift> + <*> Moves the "Source Operator" right.

<contr> + <v> Copies a value from the "Source Operator" (Op1 - Op6) to the current parameter cursor position. Example: If your "Source Operator" is operator #1 and its output level is 99, and your parameter cursor is positioned on the output level parameter of operator #3 whoes value is 67, when this command is enabled, then the output level of operator #3 will become 99, the same value as the output level for operator #1.

<contr> + <c> Copies all the parameter values from the "Source Operator" to the operator in which the parameter cursor resides.

<contr> + <e> Copies the EG values from the "Source Operator" to the operator in which the parameter cursor resides.

T - TRY; this command sends the edited voice to the DX/TX edit buffer. If the Test Tone (TN) option is on, then this command will also play the edited sound.

Y - Trys the unedited voice (for comparison with the edited version).

O - Displays all parameters as they existed before any editing occured. The <return> key will toggle the screens as usual, but any other key will restore the edit display and normal editing will resume.

E - Toggles the Test Tone (TN) option on/off.

W - Toggles the Auto Try (AT) option on/off. When the Auto Try is enabled, the newly edited version of the sound will play any time the parameter is changed.

Q - Turns on the MIDI Thru option. When this option is enabled, any notes played from your DX keyboard can be heard on other keyboards tuned to MIDI channel #1, if they are connected to the MIDI thru jack of your DX. Typing any key will turn this option off.

<contr> + <s> Saves the edited voice to the current Disk Group Voice.

<contr> + <p> Prints a hard copy of the voice parameters currently being edited.

A - Selects a new Disk Group (for any subsequent voice saves).

Z - Selects a new Disk Voice (for any subsequent voice saves).